UNITED STATES DISTRICT COURT

DISTRICT OF MINNESOTA

AUGUST TECHNOLOGY CORPORATION and RUDOLPH TECHNOLOGIES, INC.,	Civil No. 05-1396 (JRT/FLN)
Plaintiffs,	**MEMORANDUM OPINION AND ORDER**
v.	***FILED UNDER SEAL***
CAMTEK, LTD,	
Defendant.	

William D. Schultz and Daniel W. McDonald, **MERCHANT & GOULD PC**, 80 South Eighth Street, Suite 3200, Minneapolis, MN 55402, for plaintiff August Technology Corporation.

Daniel W. McDonald, **MERCHANT & GOULD PC**, 80 South Eighth Street, Suite 3200, Minneapolis, MN 55402, for plaintiff Rudolph Technologies, Inc.

Wayne O. Stacy, **COOLEY LLP**, 380 Interlocken Crescent, Suite 900, Broomfield, CO 80021; and William F. Mohrman, **MOHRMAN & KAARDAL**, 33 South Sixth Street, Suite 4100, Minneapolis, MN 55402, for defendant.

Plaintiffs August Technology Corporation and Rudolph Technologies, Inc. brought this patent infringement action against Defendant Camtek, Ltd. ("Camtek") in 2005 alleging infringement of claims 1 through 5 of United States Patent No. 6,826,298 (the "'6,298 patent"). The '6,298 patent is a system that inspects semiconductor wafers, the structures upon which microchips are manufactured. In 2009, a jury found that Camtek had infringed claims 1 and 3, which are the independent claims of the '6,298

patent. Camtek appealed the jury's determination arguing, among other things, that the Court had erred when it construed "wafer" to mean "[a] thin part of semiconductor material with circuitry thereon that is ready for electrical testing, or any part thereof." Camtek argued that the '6,298 patent requires that a system perform a variety of operations on multiple wafers, and that the Court's construction of the term wafer impermissibly allowed the jury to find infringement, even though Camtek's product allegedly only performs the operations on multiple portions of a single, physically discrete wafer.

The Federal Circuit agreed with Camtek, and construed the term "wafer" to mean "a thin, discrete slice of semiconductor material with circuitry thereon that is ready for electrical testing having one or more dies. A plurality of wafers means more than one physically distinct wafer." *August Tech. Corp. v. Camtek, Ltd.*, 655 F.3d 1278, 1286 (Fed. Cir. 2011). The Federal Circuit therefore vacated the verdict of infringement, and remanded "for a limited trial on infringement with respect to this claim element." *Id.*

The case is now before the Court on Camtek's motion for claim construction, cross-motions for summary judgment on the issue of infringement, and three motions to exclude expert reports and testimony. Because the Court finds that Camtek's request for claim construction and certain elements of its summary judgment motion fall outside the scope of the Federal Circuit's remand, it will deny those motions. The Court will grant Rudolph's motion for summary judgment with respect to the training elements of claims 1 and 3, as no material issues of fact remain as to whether Camtek's product was capable of practicing the infringing method and did, in fact, practice such a method. Finally, the

Court will deny the motions to exclude the expert reports and testimony, as the issues raised in the motions go primarily to the weight, not the admissibility, of the expert reports and testimony.

BACKGROUND

Plaintiff August Technology Corporation developed the inventions resulting in the '6,298 patent which forms the basis of this action. (Thirty-Second Decl. of Joseph E. Lee, Ex. A, July 2, 2012, Docket No. 835.) Rudolph Technologies, Inc. purchased August Technology and Rudolph and August Technology (collectively, "Rudolph") are now co-owners of the '6,298 patent. Rudolph makes and sells automated visual inspection systems for the microelectronics industry, including systems for secondary inspection of semiconductor wafers.

Rudolph and Camtek are direct competitors in the market for automated wafer inspection systems. (Mem. Op. & Order ("*Markman* Order") at 2, Jan. 3, 2008, Docket No. 268.) In 2005, Rudolph sued Camtek for infringing claims 1 through 5 of the '6,298 patent with Camtek's device, the Falcon. (Compl., July 14, 2005, Docket No. 1.) Claims 1 and 3 are independent claims.

I. PATENT TECHNOLOGY BACKGROUND

The '6,298 patent embodies an invention related to the manufacture of semiconductors, which are vital to the design of electronic components and circuitry, including memory and computer processing circuits. (Thirty-Second Lee Decl., Ex. A 1:15-16, 41-46.) The manufacture of semiconductors begins with a wafer, which is a thin

layer of silicon crystal ranging from 4 to 12 inches in diameter. Through a number of processes, circuitry is deposited in layers upon the wafer. (*Id.*, Ex. A 1:65-67.) "The whole wafer with circuitry is then sawn into smaller pieces known in the industry as die," which each contain an electronic circuit. (*Id.*, Ex. A 1:67-2:1.) Depending on the type of circuitry, anywhere from tens to thousands of individual die can be created on a single wafer. (First Decl. of Wayne Stacy, Ex. A 8:12-22, July 7, 2012, Docket No. 825.) A single die contains a complete electronic circuit, and is then removed from the wafer and packaged as an individual microchip. (*See* Thirty-Second Lee Decl., Ex A 2:47-50.)

The '6,298 patent is directed to a system and method for automatically inspecting the semiconductors printed on substrates such as wafers. *August Tech. Corp.*, 655 F.3d at 1282; (Thirty-Second Lee Decl., Ex. A 1:15-26.) Systems have been developed for inspecting semiconductors at various stages of their production. (Thirty-Second Lee Decl., Ex. A 2:4-5.) For example, bare wafers are typically inspected for imperfections or irregularities before any circuitry has been deposited upon them. (*Id.*, Ex. A 2:5-11.) The next level of inspection occurs during circuitry creation and is known in the industry as the "first optical inspection." (*Id.*, Ex. A 2:12-29.) The '6,298 patent involves a method and system designed to perform the second optical inspection which occurs during and after sawing of the wafer into individual dies, after the whole wafer has been fully processed and circuitry deposition is complete. (*Id.*, Ex. 2:30-46.) This second optical inspection examines the fully processed wafer for a number of defects, from scratches and corrosion to scribing errors. (*Id.*; First Stacy Decl., Ex. C at 13.) Prior to Rudolph's invention resulting in the '6,298 patent, the second optical inspection was

typically done manually and was expensive as well as fraught with inaccuracies. (Thirty-Second Lee Decl., Ex. A 3:9-20.)

II. THE '6,298 PATENT

The '6,298 patent contains five claims, 1 and 3 being the independent claims that are at issue in the present motions.

A. Infringement Claim

1. Claim 1

Claim one of the '6,298 patent recites:

> An automated system for inspecting a substrate such as a wafer in any form including whole patterned wafers, sawn wafers, broken wafers, and wafers of any kind on film frames, dies, die in gel paks, die in waffle paks, multi-chip modules often called MCMs, JEDEC trays, Auer boats, and other wafer and die package configurations for defects, the system comprising:
>
> a wafer test plate;
>
> a wafer provider for providing a wafer to the test plate;
>
> a visual inspection device for visual inputting of a plurality of known good quality wafers during training and for visual inspection of other unknown quality wafers during inspection;
>
> at least one of a brightfield illuminator positioned approximately above, a darkfield illuminator positioned approximately above, and a darkfield laser positioned approximately about the periphery of the wafer test plate, all of which are for providing illumination to the unknown quality wafers during inspection and at least one of which strobes to provide short pulses of light during movement of a wafer under inspection based on a velocity of the wafer; and

> a microprocessor having processing and memory capabilities for developing a model of good quality wafer and comparing unknown quality wafers to the model.

(*Id.*, Ex. A 20:55-21:9.)

2. Claim 3

Claim three of the '6,298 patent provides:

> An automated method of inspecting a semiconductor wafer in any form including whole patterned wafers, sawn wafers, broken wafers, and wafers of any kind of film frames, dies, die in gel paks, die in waffle paks, multi-chip modules often called MCMs, JEDEC trays, Auer boats, and other wafer and die package configurations for defects, the method comprising:
>
> > training a model as to parameters of a good wafer via optical viewing of multiple known good wafers;
> >
> > illuminating unknown quality wafers using at least one of a brightfield illuminator positioned approximately above, a darkfield illuminator positioned approximately above, and a darkfield laser positioned approximately about the periphery of a wafer test plate on which the wafer is inspected, all of which are for providing illumination to the unknown quality wafers during inspection and at least one of which flashes on and off during movement of a wafer under inspection at a sequence correlating to a velocity of the wafer; and
> >
> > inspecting unknown quality wafers using the model.

(*Id.*, Ex. A 21:17-22:15.)

III. PROCEDURAL HISTORY

This case has extensive procedural history some of which provides useful background for the factual issues relevant to the current motions. This Order therefore addresses the relevant procedural history first, before discussing the facts regarding

Camtek's allegedly infringing product, the Falcon, in the context of the parties' various motions.

A. Markman Hearing

In a January 3, 2008 *Markman* order, the Court construed a number of terms in the '6,298 patent which are relevant to the current motions, including:

Wafer. The Court construed "wafer" to mean "[a] thin slice of semiconductor material with circuitry thereon that is ready for electrical testing, or any part thereof." (*Markman* Order at 8, 11.)

Training. The Court construed training to mean "[e]xamining wafers to develop a model of a good quality wafer." (*Id.* at 20.) In adopting this construction, the Court rejected Rudolph's construction which incorporated "telling the system what a 'good die' comprises, and viewing good die to form a model based on common characteristics, elements, and ranges. The model is then used to inspect die to locate defects." (*Id.* at 19-20 (internal citation omitted).) Instead, the Court found that "Plaintiffs[']reliance on the step in which the model is used to inspect die to locate defects is a step separate from training, and need not be used to define training." (*Id.* at 20.)

Unknown Quality Wafer. The Court construed "unknown quality wafer" to mean "[w]afers for which the location of one or more defects, if any, is not identified or ascertained prior to inspection." (*Id.* at 13-14.)

Plurality of Known Good Quality Wafers/Multiple Known Good Wafers. The Court construed this term to mean "[m]ultiple 'wafers' that are recognized individually or

as a whole to be sufficiently free of defects for training purposes (e.g. die that have been inspected, tested, or otherwise reviewed prior to or during training)." (*Id.* at 11-12.) The Court noted that its construction was consistent with the '6,298 patent's specifications which state that the system "conducts die inspection by studying a user provided set of known good die" and that "the definition of a good die depends on user provided information." (*Id.* at 12 (citing Thirty-Second Lee Decl., Ex. A 12:13-15, 12:67-13:4).)

B. Trial

An eighteen-day jury trial was held from February 2, 2009, through March 5, 2009. (*See* Court Minutes, Feb. 2, 2009, Docket No. 406; Court Minutes, Mar. 5, 2009, Docket No. 465.) At trial, Camtek disputed infringement, arguing that three elements of claim 1 were absent from the Falcon:

> (1) a visual inspection device for visual inputting of a plurality of known good quality wafers during training and visual inspection of other unknown quality wafers during inspection; (2) an illuminator that strobes to provide short pulses of light during movement of a wafer under inspection based on a velocity of the wafer; and (3) a microprocessor for developing a model of a good quality wafer and comparing unknown quality wafers to the model

(Final Jury Instruction 13, Mar. 3, 2009, Docket No. 463.) Camtek did "not dispute that the Falcon includes the other features of claim 1, which includes the wafer test plate, wafer provider, and brightfield and darkfield illuminators." (*Id.*) Camtek also disputed that it practiced the following steps of the claimed inspection method for purposes of claim 3:

> (1) training a model as to parameters of a good wafer via optical viewing of multiple known good wafers; (2) illuminating unknown quality wafers with an illuminator that flashes on and off during movement of a wafer under

> inspection at a sequence correlating to a velocity of the wafer; and (3) inspecting unknown quality wafers using the model.

(*Id.*) Camtek did "not dispute that Camtek practices the other steps of claim 3." (*Id.*) For the remainder of this Order, the Court will refer to disputed element one as the "training element," disputed element two as the "strobing element," and disputed element three as the "microprocessor/inspection element" for purposes of both claims 1 and 3.

After trial, the jury returned a special verdict finding that Camtek and its Falcon device literally infringed both claims 1 and 3 of the '6,298 patent. (Special Verdict Form at 1-4, Mar. 5, 2009, Docket No. 466.) Additionally, the jury rejected both of Camtek's invalidity defenses, finding that Camtek had failed to prove by clear and convincing evidence that the asserted claims 1 and 3 were obvious and also finding that Rudolph's NSX-80 device was not on sale prior to the '6,298 patent's critical date. (*Id.* at 5.) Finally, the jury found that Camtek's infringement was not willful, and awarded $6,782,490 in lost profits to Rudolph. (*Id.* at 6-7.)

The Court denied Camtek's motion for judgment as a matter of law or a new trial on validity, infringement, and damages. (Mem. Op. & Order at 2, Aug. 25, 2009, Docket No. 545.) Specifically, the Court rejected Camtek's argument that Rudolph's NSX-80 device was on sale prior to the '6,298 patent's critical date, and that the Court had erred in instructing the jury with respect to the meaning of "on sale." (*Id.* at 3-6.) The Court also determined that the jury verdict was not against the clear weight of the evidence with respect to the date of sale of the NSX-80 device. (*Id.* at 7-8.) Finally, the Court granted Rudolph's motion to dismiss Camtek's inequitable conduct defense and counterclaim,

which had previously been bifurcated from the original trial, because those theories of defense had been precluded by the jury verdict. (*Id.* at 2, 8-12.)

The Court denied Camtek's three additional motions for judgment as a matter of law on July 27, 2010. (*See* Mem. of Law & Order, July 27, 2010, Docket No. 644.) In these later-filed motions, Camtek argued that no reasonable jury could have found infringement on the "plurality of wafers" limitation of claim 1 and the "multiple wafers" limitation of claim 3 because "claims 1 and 3 require more than one wafer be visually inputted or optically viewed during training, but that the Falcon machines visually input only multiple dies on a single wafer during training." (*Id.* at 5-6.) The Court found that under its construction of the term wafer, the jury could reasonably have found infringement because "the Falcon visually inputs sections of multiple die from different parts of a whole wafer." (*Id.* at 7.) Camtek also argued that the Falcon creates a model die, not a model wafer and that the Falcon used a position-based method of strobing a light as opposed to a velocity-based system. (*Id.* at 7-10.) The Court rejected both of these arguments finding that a reasonable jury could have found infringement based on the evidence presented at trial. (*Id.*)

C. Appeal

On appeal to the Federal Circuit, Camtek challenged the validity and enforceability of the '6,298 patent, the jury's damage award, and the permanent

injunction entered by the district court. (Thirty-Second Lee Decl., Ex. E.)[1] Camtek also argued error with respect to two infringement issues. (*See id.*, Ex. E.) Camtek argued first that the Falcon "trains on only a single wafer, not multiple wafers," and second, that "the Falcon strobe is based on the position of the wafer not the velocity of the wafer." (*Id.*, Ex. E at 5, 31, 43.) Camtek did not appeal the jury's determination with respect to the microprocessor/inspection element. With respect to the two infringement issues raised, Camtek argued that the district court committed legal error in its claim constructions and that those errors led to the jury's erroneous finding of infringement. (*Id.*, Ex. E at 14.)

With respect to the single versus multiple wafer issue, Camtek argued that the district court had erred when it construed the term wafer as "a thin slice of semiconductor material with circuitry thereon that is ready for electrical testing, **or any part thereof**" because, Camtek contended "a 'wafer' is not the same as a 'die.' A wafer is made up of multiple die[s]." *August Tech. Corp.*, 655 F.3d at 1282 (emphasis in original). The '6,298 patent requires a system for "visual inputting **a plurality of known good quality wafers** during training." *Id.* at 1283 (emphasis added). Camtek argued that the Falcon only trains individual die which can all be found on a single wafer, (Thirty-Second Lee Decl., Ex. E at 43-44), and that the district court's construction of wafer erroneously allowed the jury to find infringement even though the Falcon did not train on a plurality of known wafers, *August Tech. Corp.*, 655 F.3d at 1283. Specifically, Camtek argued

[1] Page references to Exhibit E of the Thirty-Second Lee Declaration refer to the CMECF pagination.

"that the district court erred by including the 'or any part thereof' phrase in its construction, asserting that such a definition 'erroneously permits a single physical wafer to have an arbitrary number of notional 'wafers' within it." *Id.* (citation omitted). In its briefing on appeal, Camtek's objections to the district court's construction of wafer were tied to the training element of claims 1 and 3, specifically "training on multiple wafers of known good quality: 'plurality of known quality wafers' (claim 1) and 'multiple known good wafers' (claim 3)." (Thirty-Second Lee Decl., Ex. E at 20-21).

The Federal Circuit agreed with Camtek that the district court had erred in its construction of "wafer," and therefore set out to "determin[e] the meaning of the plurality of wafers limitations." *August Tech. Corp.*, 655 F.3d at 1284. The court determined that "a wafer is a discrete object, and thus a single wafer, even though it may later be diced into hundreds of separate dies, is not itself also a plurality of wafers." *Id.* at 1285. The court specifically concluded that Rudolph had chosen to draft a patent "directed to training on and inspecting multiple discrete wafers," not multiple and discrete dies. *Id.* at 1286 (emphasis added). In light of the district court's error, the Federal Circuit provided a new construction for the term "wafer," holding that:

> The district court's construction is in error so far as it defines a wafer as any portion of a wafer having two or more dies. We construe a wafer as recited in the claims at issue as a thin, discrete slice of semiconductor material with circuitry thereon that is ready for electrical testing having one or more dies. A plurality of wafers means more than one physically distinct wafer.

Id. Under this construction "wafer" can include a single die, but in order for multiple die to constitute multiple wafers, the dies must be located on physically discrete wafers. *Id.*

Because of the flawed claim construction of the term "wafer," the Federal Circuit vacated the verdict of infringement and remanded the case to the district court "for a limited trial on infringement with respect to this claim element." *Id.*

Because it found that the district court had erred in its claim construction, the Federal Circuit "vacate[d] the district court's judgment of infringement, its award of damages, and its grant of a permanent injunction, and remand[ed] for further proceedings consistent with [its] opinion." *Id.* at 1281. The Federal Circuit therefore did "not reach the parties' contentions regarding damages and the injunction." *Id.* at 1290. The court went on to advise the district court that in the event it found Camtek's Falcon to infringe under the new claim construction of "wafer," it should take into account the effect, if any, of *Transocean Offshore Deepwater Drilling, Inc. v. Maersk Contractors USA, Inc.*, 617 F.3d 1296 (Fed. Cir. 2010), when crafting an appropriate injunction. *August Tech.*, 655 F.3d at 1291.[2]

With respect to the error alleged by Camtek regarding the strobing infringement claim, the Federal Circuit concluded that the district court had not erred in its analysis and held that "the district court need not include the strobing limitation in its retrial on infringement." *August Tech. Corp.*, 655 F.3d at 1287.

[2] The Federal Circuit also rejected Camtek's arguments regarding the validity and enforceability of the '6,298 patent, and affirmed the district court's determinations regarding nonobviousness and lack of prior art. *August Tech. Corp.*, 655 F.3d at 1287-90.

D. Motion for Bifurcation

Upon remand from the Federal Circuit, Camtek moved for an order bifurcating the remand trial into an infringement phase and a remedies phase. (Mot. to Bifurcate, June 1, 2012, Docket No. 798.)[3] United States Magistrate Judge Franklin L. Noel denied Camtek's motion for bifurcation. (Order, June 26, 2012, Docket No. 816.) The Magistrate Judge concluded, based on the Federal Circuit's remand, that "[t]here is no need for a new trial on damages. In the event infringement is found, the original damage award will be reinstated. . . . In the event Camtek's Falcon machine is found to infringe after a new trial, the District Court will then craft an appropriate injunction." (*Id.* at 3.) Because the Magistrate Judge found that "the scope of an appropriate injunction is at issue on remand," he determined that "expert reports on the injunction issues are appropriate." (*Id.*) Therefore, the Magistrate Judge also denied Camtek's "request that Plaintiffs be required to withdraw the Second Supplemental Report of Frances McCloskey." (*Id.*)[4]

The parties now bring various motions to resolve the issues remanded by the Federal Circuit. Camtek contends that the scope of the Federal Circuit's remand is broad and puts at issue each claim in the '6,298 patent that contains the term "wafer," with the

[3] After ordering Camtek to pay sanctions following remand, Chief Judge Davis recused from the case, determining that he could "no longer be fair and impartial." (Order of Recusal, Apr. 10, 2012, Docket No. 772.) Therefore, the case was reassigned to this Court in April 2012. (Notice of Reassignment, Apr. 10, 2012, Docket No. 773.)

[4] Camtek has appealed the Magistrate Judge's order, and that appeal is currently pending before the Court. (Objections, July 10, 2012, Docket No. 855.)

exception of the strobing element. Consequently, Camtek moves for claim construction of the terms "unknown quality wafers" and "model." Camtek also moves for summary judgment of non-infringement with respect to both the training and microprocessor/inspection elements of claims 1 and 3. Camtek's arguments regarding non-infringement are largely premised on its contention that the Falcon is a "**die**-inspection system" rather than a "**wafer**-inspection system" like the '6,298 patent. (*See* Def.'s Mem. in Supp. of Mot. for Claim Construction & Summ. J. at 5, July 2, 2012, Docket No. 824 (emphasis in original).) Essentially, with respect to the training and microprocessor/inspection elements which both require infringing machines to perform certain operations with multiple wafers, Camtek argues that the Falcon performs these operations using multiple die instead of multiple wafers.

Rudolph argues that the only issues remaining following the Federal Circuit's ruling relate to the training elements of claims 1 and 3. Specifically, Rudolph argues that the sole questions before the Court are whether the Falcon is "capable of being trained with **multiple**, physically **discrete** wafers to infringe claim 1," and whether Camtek "trained the Falcon with **multiple**, physically **discrete** wafers to infringe claim 3." (Pls.' Mem. in Supp. of Mot. for Summ. J. at 1-2, July 2, 2012, Docket No. 834 (emphasis in original).) Rudolph contends that it is entitled to summary judgment with respect to the training element of both claims 1 and claims 3.

ANALYSIS

I. SCOPE OF REMAND

As an initial matter, the parties dispute the scope of the Federal Circuit's remand and what issues are therefore appropriate either for summary judgment or retrial. Rudolph argues that on remand the Court need only consider whether the Falcon is capable of being **trained** with multiple, physically discrete wafers. Specifically Rudolph argues that the Federal Circuit's remand does not reopen the trial for any claims which involve "wafers" but rather is limited to (1) whether the Falcon has "a visual inspection device for visual inputting of a plurality of known good quality wafers during training" and (2) whether Camtek used the Falcon by "training a model as to parameters of a good wafer via optical viewing of multiple know good wafers." (*See* Pls.' Mem. in Opp'n to Def.'s Mot. for Claim Construction & Summ. J. at 8, July 23, 2012, Docket No. 876.) Camtek argues, on the other hand, that both the microprocessing/inspection element and the training element are subject to retrial.

A. The Mandate Rule

The mandate rule requires a district court to follow an appellate decree as the law of the case. *Sibbald v. United States*, 37 U.S. 488, 492 (1838). "The mandate rule provides that 'issues actually decided [on appeal] – those within the scope of the judgment appealed from, minus those expressly reserved or remanded by the court – are foreclosed from further consideration.'" *Amado v. Microsoft Corp.*, 517 F.3d 1353, 1360 (Fed. Cir. 2008) (quoting *Engel Indus., Inc. v. Lockformer Co.*, 166 F.3d 1379, 1383

(Fed. Cir. 1999)). The scope of issues possibly foreclosed by an appeal is measured "by the scope of the judgment appealed from, not by the arguments advanced by the appellant." *Engel Indus., Inc.*, 166 F.3d at 1382 (citations omitted). The Federal Circuit explained that its responsibility to review judgments appealed to it

> can be properly discharged only if the court assumes that the appellant has fully set forth its attack on the judgment below; only then will the court be able to address with confidence the range of issues determined by the appealed judgment. In other words, the court is entitled to assume that an appellant has raised all issues it deems important against a judgment appealed from. An issue that falls within the scope of the judgment appealed from but is not raised by the appellant in its opening brief on appeal is necessarily waived. Unless remanded by this court, all issues within the scope of the appealed judgment are deemed incorporated within the mandate and thus are precluded from further adjudication.

Id. at 1383.

When the Federal Circuit reverses a district court's claim construction, a mandate on remand usually leaves open the "possibility that a new claim construction ruling may raise directly related new issues." *Cardiac Pacemakers, Inc. v. St. Jude Med., Inc.*, 576 F.3d 1348, 1356 (Fed. Cir. 2009) (internal quotation marks omitted). The Court must carefully consider the Federal Circuit's "explicit instructions" on remand in determining what claims are appropriately before it. *Id.*

B. Scope of the Federal Circuit's Opinion

The Court concludes that the Federal Circuit limited the issues on remand to the training elements of claims 1 and 3 as they relate to the use of multiple, physically discrete wafers. Although the Federal Circuit's opinion is not entirely explicit as to the proper scope of remand, the Court finds that the arguments raised by the parties on appeal

and the precise wording and construction of the Federal Circuit's opinion support its conclusion.

First, Camtek conceded at trial that it disputed infringement with respect to only three elements of claims 1 and 3. (*See* Final Jury Instruction 13.) After the jury found that the Falcon infringed with respect to each of these elements, Camtek appealed to the Federal Circuit and in its opening brief challenged only the findings with respect to the training element and the strobing element. Specifically, Camtek argued that the district court erred in construing wafers by not requiring a "plurality of known good quality wafers" and "multiple known good wafers" as used in the training element of claims 1 and 3 to require more than one physically distinct substrate. (Thirty-Second Lee Decl., Ex. E at 31-33, 37-38.) Camtek argued that this error in construction warranted reversal because the errors "caused the jury to erroneously find the claims valid and infringed." (*Id.*, Ex. E at 31.) The only argument Camtek raised regarding jury error arising out of the Court's construction of wafers was that the jury erred in finding infringement because "the Falcon **trains** on only a single wafer, not multiple wafers." (*Id.*, Ex. E at 43-46 (emphasis added).)

Camtek's failure to argue in its brief that the district court's construction of wafer also resulted in an erroneous jury verdict with respect to the microprocessor/inspection element provides strong evidence that the Federal Circuit's remand did not include that element. This is so because even if the Federal Circuit finds that a district court's claim construction is incorrect, it will reverse only if that construction impacted the jury verdict. *See Z4 Techs., Inc. v. Microsoft Corp.*, 507 F.3d 1340, 1349 (Fed. Cir. 2007)

(declining to reverse because "a reasonable juror could find that Microsoft infringed the asserted claims notwithstanding our modification of the district court's construction of the term user"). Accordingly, because Camtek did not present the issue of jury error related to the microprocessor/inspection claim to the Federal Circuit, that claim was not included in the scope of the Federal Circuit's remand. *See United States v. Husband*, 312 F.3d 247, 250 (7th Cir. 2002) (explaining that "[a]ny issue that could have been but was not raised on appeal is waived and thus not remanded"); *Engel Indus., Inc.*, 166 F.3d at 1383 ("An issue that falls within the scope of the judgment appealed from but is not raised by the appellant in its opening brief on appeal is necessarily waived. Unless remanded by this court, all issues within the scope of the appealed judgment are deemed incorporated within the mandate and thus are precluded from further adjudication.").

Second, the Federal Circuit's opinion itself confirms that remand is limited to the issue of training under claims 1 and 3. In ascertaining the scope of remand, the Court looks to the appellate opinion as a whole. *Husband*, 312 F.3d at 251. "[I]f the opinion identifies a discrete, particular error that can be corrected on remand without the need for a redetermination of other issues, the district court is limited to correcting that error." *Id.* (internal quotation marks omitted). Where an appellate court does not address an argument explicitly "the implication is that . . . [the court] thought so little of the point that [it] did not see a need to discuss it, or the party did not invoke and thereby waived the point. The court's silence on the argument implies that it is not available for consideration on remand." *Id.* (alterations, internal citations, and internal quotation marks omitted).

In its opinion, the Federal Circuit began by acknowledging that "[t]he dispute in this case centers around whether 'a wafer' is also 'a plurality of wafers,'" and specifically cited the training element of claim 1 as framing the dispute. *August Tech. Corp.*, 655 F.3d at 1282-83 ("Claim 1 requires 'visual inputting a plurality of known good quality wafers during training' to teach the system a standard for detecting defects. The district court referred to this 'plurality of known good quality wafers' limitation as the multiple wafer limitation. This limitation requires multiple good wafers to be used to train the system – so the inspection device will know a flawed wafer when it sees one."). The court then went on to "determine the meaning of the plurality of wafers limitations" and continued to focus on the import of the construction of wafer as it relates to the training element. *Id.* at 1284; *see also id.* at 1285 (noting that "[t]he disclosure therefore teaches both using multiple die and multiple wafers **to train** (emphasis added); *id.* ("The fact that the claims at issue cover only the latter – **a plurality of known good wafers** – is little cause for concern." (emphasis added).)

The Federal Circuit then "remand[ed] to the district court **for a limited trial** on infringement with respect to **this claim element**." *Id.* at 1286 (emphasis added). Notably, a wafer itself is not a "claim element." (*See* Mem. Op. & Order at 8, July 14, 2008, Docket No. 294 ("The innovation of the '6,298 patent is an automated wafer inspection system – not the wafers themselves. The wafers **are not claimed**, they are referenced solely with respect to the capabilities of the system – training and inspection." (emphasis added)). Therefore when remanding with respect to "this claim element" the Federal Circuit could not have been referring generally to the term "wafers" as it is used

anywhere in the '6,298 patent. Instead, the court was referring to the single element claimed by the '6,298 patent that it discussed in the opinion – the training element as it relates to a plurality of known good wafers. The Federal Circuit's focus on the training element and its explicit statement that it was determining the meaning "of the plurality of wafers limitations" which appear only in the training elements of claims 1 and 3 indicates that the remand with respect to "this claim element" is a remand for retrial as to the training element or limitation.[5]

Finally, the Court concludes that its interpretation of the scope of the Federal Circuit's remand is supported by Camtek's stipulation that retrial was limited to the

[5] Camtek argues that the Federal Circuit intended to remand on all issues related to wafers because it used the term "claim element" as opposed to "claim limitation" in its description of the "limited trial on infringement." (*See* Def.'s Mem. in Opp'n to Mot. for Summ. J. at 13 & n.6, July 23, 2012, Docket No. 865.) As support Camtek cites *Dawn Equipment Co. v. Kentucky Farms Inc.*, 140 F.3d 1009 (Fed. Cir. 1998), which noted that "each claim limitation must be present in the accused product, literally or equivalently," and that "this court has moved towards the custom of referring to claim 'limitations,' reserving the word 'elements' for describing the parts of the accused device, though the court on occasion continues to use the words interchangeably." *Id.* at 1014 & n.1. But recent cases from the Federal Circuit suggest that the court has continued to use the words interchangeably. *See, e.g.*, *Regents of Univ. of Minn. v. AGA Med. Corp.*, 717 F.3d 929, 944 (Fed. Cir. 2013) ("The appropriate focus is on the scope of the **claim element**, not the meaning of particular words in isolation. This is why our cases evaluate the similarity between the earlier and later **claim limitations** . . . ." (emphasis added)); *Mettler-Toledo, Inc. v. B-Tek Scales, LLC*, 671 F.3d 1291, 1296 (Fed. Cir. 2012) ("We agree with the district court that the appropriate structure for the disputed means-plus-functions **claim elements** in the '547 patent is the multiple slope integrating A/D converter and equivalents thereof. Our case law is clear that a means-plus-functions **claim limitation** is limited to the structures disclosed in the specification and equivalents." (emphasis added)). Additionally, the distinction identified by Camtek makes little sense in the context of the Federal Circuit's statement in connection with remand, because the Federal Circuit was not remanding based on a new construction of "part[] of the accused device." *See Dawn Equip. Co.*, 140 F.3d at 1014, n.1. The Federal Circuit was plainly remanding because it found that the district court had erred in defining the aspects of training that require a "plurality of known good quality wafers" or "multiple known good wafers" in order to constitute infringement. Accordingly, the Court determines that Camtek's proposed differentiation between claim element and claim limitation does not change its interpretation of the scope of remand.

training elements of claims 1 and 3. Pursuant to an order from the Court, the parties filed a joint statement in April 2012. (Notice of Case Management Conference, Mar. 21, 2012, Docket No. 763; Joint Statement, Apr. 13, 2012, Docket No. 778.) In the statement, the parties agreed that "there is one infringement issue to be resolved on remand: whether the accused Falcon machines meet the boldfaced portions of the following claim limitations, with the "wafer" and "plurality of"/"multiple" wafer limitations:

> Claim 1: An automated system . . . comprising:
>
> a visual inspection device for visual inputting of **a plurality of known good wafers** during training and for visual inspection of other unknown quality wafers during inspection
> . . .

and

> Claim 3: An automated method . . . comprising:
>
> training a model as to parameters of a good wafer via optical viewing of **multiple known good wafers**

(Joint Statement at 4.) The only disagreement the parties identified with regard to the retrial of infringement was that Camtek "denie[d] that the accused Falcon machines infringe the asserted claims." (*Id.* at 4.) Camtek also stated in the joint statement that it believed a two-day trial with no more than five hours of evidence presentation per side was sufficient based on its understanding of the limited scope of retrial. (*Id.* at 8.) Although Camtek later determined that it did not agree with the position it had taken in the joint statement regarding the scope of retrial (*see* Second Decl. of Wayne Stacy, Ex. 1, July 23, 2012, Docket No. 866) the Court finds that the joint statement provides further

evidence of the Federal Circuit's scope of remand. Accordingly, the Court finds that the only issues it may properly address in connection with the present motions are those which relate to the training elements of claims 1 and 3. Camtek's arguments for summary judgment on the microprocessor/inspection element are not properly before this Court on remand, and the Court will therefore deny Camtek's motions to the extent they seek relief unrelated to the training elements.[6]

II. MOTION FOR CLAIM CONSTRUCTION

Camtek seeks claim construction of three terms – "unknown quality wafers," "model of good quality wafer," and "a model." (Mot. for Claim Construction & Summ. J. at 1, July 2, 2012, Docket No. 823.) Generally if a claim construction previously ordered by the district court is not reversed by the Federal Circuit "it is the law of the case," and cannot be revisited on remand. *See Rosco, Inc. v. Mirror Lite Co.*, 506 F. Supp. 2d 137, 154 (E.D.N.Y. 2007). On remand, new claims may be construed only if the new claim construction is "directly related" to the new issues raised by the remand. *See Cardiac Pacemakers, Inc.*, 576 F.3d at 1356.

[6] Rudolph argues that it is entitled to attorneys' fees for costs it has incurred in responding to Camtek's motion for claim construction and summary judgment because Camtek has needlessly prolonged the litigation by attempting to relitigate issues that have already been decided and has maintained its position that all issues of infringement with the exception of the strobing element are subject to relitigation in bad faith. (*See* Pls.' Mem. in Opp'n to Mot. for Claim Construction & Summ. J. at 38-40.) Although the Court concludes that the issues raised by Camtek unrelated to the training element are not properly before the Court, it finds that Camtek's arguments, although incorrect, were within the bounds of zealous advocacy and do not present a clearly unreasonable or bad faith interpretation of the Federal Circuit's mandate. Accordingly, the Court will deny Rudolph's request for attorneys' fees.

A. Unknown Quality Wafers

The Court already construed the term "unknown quality wafers" in its *Markman* hearing, and Camtek did not appeal that determination. (*See Markman* Order at 13-14.) Specifically, the Court previously defined the term as "[w]afers for which the location of one or more defects, if any, is not identified or ascertained prior to inspection." (*Id.*) Camtek has identified no aspect of the Federal Circuit's construction of the term "wafers" that would require the Court to alter its construction of the term "unknown quality wafers" other than by adopting the Federal Circuit's definition of plural wafers. Accordingly, the Court finds that new claim construction is unwarranted. Furthermore, this term appears only in the elements of the '6,298 patent related to the microprocessor/inspection element. The fact that these elements are not in issue on remand is another reason that claim construction is improper.

B. Model of a Good Quality Wafer and Model

Camtek also seeks claim construction of the term "model of a good quality wafer" and "model." Camtek argues that the Court should construe "model" as "a collection of pixels representing a perfect wafer." (Def.'s Mot. for Claim Construction & Summ. J. at 16.) Although Camtek did not previously seek construction of the term "model wafer," the Court previously interpreted the term in the context of some of Camtek's post-trial motions. Specifically, the Court found that a model wafer is one "with all of the necessary characteristics to inspect an unknown quality wafer." (Mem. of Law & Order

at 8, July 27, 2010, Docket No. 644.) Camtek did not challenge this interpretation on appeal.

Camtek appears to argue, however, that the Federal Circuit's remand on the issue of a plurality of wafers requires a new construction of the term model wafer because "[n]o jury has ever considered whether the Falcon develops a 'model wafer' using the correct constructions." (Def.'s Reply in Supp. of Mot. for Claim Construction & Summ. J. at 9, Aug. 6, 2012, Docket No. 893.) Specifically Camtek argues that the Falcon develops a model **die**, not a model **wafer**, and therefore cannot infringe the '6,298 patent. (*See, e.g.*, Def.'s Mem. in Opp'n to Mot. for Summ. J. at 17, July 23, 2012, Docket No. 865.) But Camtek's argument relies on the fundamental misunderstanding that "[a] die, which is merely a part of a wafer, is not a 'wafer' under the Federal Circuit's construction." (*Id.* at 7; *see also* Def.'s Mem. in Supp. of Mot. for Claim Construction & Summ. J. at 8 ("[T]he Court need only affirm and enforce the Federal Circuit's holding that a 'wafer' cannot mean or refer to a portion of a wafer. . . .") .) Camtek is simply wrong about the Federal Circuit's construction of wafer. Contrary to Camtek's assertion, the Federal Circuit clearly stated that a wafer could be a single die. *See August Tech. Corp.*, 655 F.3d at 1285 ("[T]he claims neatly accommodate a wafer in any discrete format, such as a whole wafer, a discrete portion of a wafer (a sawn wafer or a broken wafer), and even a discrete physical substrate that includes **only an individual die**." (emphasis added)). What the Federal Circuit **did** hold, is that in order to have the multiple wafers necessary to constitute infringement of the training claims, the Falcon must perform its operations on multiple discrete wafers – even if on those wafers it

performs the operations with respect to only a single die – not multiple die contained on the same wafer. *Id.* at 1287.

The terms "model of a good quality wafer" and "model" are **singular**, therefore the Federal Circuit's holding regarding the '6,298 patent's requirements for **plural** wafers – e.g., what it means for there to be more than one wafer used in a specific process – is irrelevant to the construction of the term "model," and does not put that term newly at issue on remand. In other words, because the Federal Circuit's construction of wafer explicitly states that a wafer can be a single die, the difference between a "model die" and a "model wafer" as postulated by Camtek is irrelevant, and Camtek has presented no evidence that in light of the Federal Circuit's new construction of the term "wafers" the jury could have erroneously concluded that Camtek created a model wafer. If Camtek wished to have the Court define model as "a collection of pixels representing a perfect wafer" it should have asked for the claim to be construed in the original trial. If Camtek wished to dispute the Court's interpretation that a model wafer is one "with all of the necessary characteristics to inspect an unknown quality wafer," (Mem. of Law & Order at 8), it should have asked the Federal Circuit to review that determination. Because reconstruction of the term "model" is not properly at issue on remand, the Court will deny Camtek's motion for claim construction and will apply the term previously construed by the Court as the law of the case.

III. MOTIONS FOR SUMMARY JUDGMENT

A. Standard of Review

Summary judgment is appropriate where there are no genuine issues of material fact and the moving party can demonstrate that it is entitled to judgment as a matter of law. Fed. R. Civ. P. 56(a). A fact is material if it might affect the outcome of the suit, and a dispute is genuine if the evidence is such that it could lead a reasonable jury to return a verdict for either party. *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 248 (1986). A court considering a motion for summary judgment must view the facts in the light most favorable to the non-moving party and give that party the benefit of all reasonable inferences to be drawn from those facts. *Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574, 587 (1986). Summary judgment is appropriate if the nonmoving party "fails to make a showing sufficient to establish the existence of an element essential to that party's case, and on which that party will bear the burden of proof at trial." *Celotex Corp. v. Catrett*, 477 U.S. 317, 322 (1986). "To defeat a motion for summary judgment, a party may not rest upon allegations, but must produce probative evidence sufficient to demonstrate a genuine issue [of material fact] for trial." *Davenport v. Univ. of Ark. Bd. of Trs.*, 553 F.3d 1110, 1113 (8th Cir. 2009) (citing *Anderson*, 477 U.S. at 247-49). When "there is no dispute regarding the operation of the accused system[], that issue reduces to a question of claim interpretation and is amenable to summary judgment." *MyMail, Ltd. v. Am. Online, Inc.*, 476 F.3d 1372, 1378 (Fed. Cir. 2007).

B. Training Element[7]

Rudolph and Camtek both move for summary judgment on the issue of whether the Falcon involves "visual inputting of a plurality of known good quality wafers during training" as required to infringe the training element of claim 1 and whether the Falcon involves "training a model as to parameters of a good wafer via optical viewing of multiple known wafers" as required to infringe the training element of claim 3. To show that the Falcon infringed claim 1, Rudolph must merely show that the Falcon is capable of inputting a plurality of known good quality wafers during training. *See Finjan, Inc. v. Secure Computing Corp.*, 626 F.3d 1197, 1204 (Fed Cir. 2010) ("[T]o infringe a claim that recites capability and not actual operation, an accused device need only be capable of operating in the described mode. Thus, depending on the claims, an accused device may be found to infringe if it is reasonably capable of satisfying the claim limitations, even though it may also be capable of noninfringing modes of operation." (internal citation and quotation marks omitted)). Claim 3, however, requires Rudolph to show that the Falcon has in fact trained a model through the viewing of multiple known wafers, not that it is merely capable of such an action. (*See* Pls.' Mem. in Supp. of Mot. for Summ. J. at 27.) The Court previously defined the term "training" to mean "examining wafers to develop a model of a good quality wafer." (*Markman* Order at 20.) In arriving at this construction, the Court noted that "the step in which the model is used to inspect die to

[7] In deciding the parties' motions for summary judgment, the Court has considered the expert report of Mundy because, as explained more fully below, it finds that the expert report is admissible. The Court also considers the expert report of Mellor because, even if that report was inadmissible, reliance on the report does not alter the Court's summary judgment analysis.

locate defects is a step separate from training." (*Id.*) Because Camtek did not appeal the construction of training, and the Federal Circuit did not alter the construction on appeal, the previous construction of training is controlling for purposes of this motion.

1. Claim 1

The Falcon is intended "to help companies decide which die should continue along the process of becoming chips for consumer use and which die need to be thrown away." (First Decl. of John Mellor ¶ 3, July 2, 2012, Docket No. 826.) To accomplish this purpose, the Falcon performs several subroutines; the first involves using a single wafer to create a reference die. (First Mellor Decl. ¶ 3; First Stacy Decl., Ex. E at CAM000053-55.) After creating the reference die, the Falcon uses it to identify the locations of the die on the wafer and create a wafer map, which enables the Falcon to move from die to die during inspection of die on a wafer of unknown quality. (First Mellor Decl. ¶¶ 9-10; First Stacy Decl., Ex. E at CAM000053-55.) The Falcon then cleans the reference die to produce a golden die using a number of cleaning die that come from the same wafer. (First Mellor Decl. ¶¶ 3, 12; First Stacy Decl., Ex. E at CAM000056-57.) The golden die is used to train the Falcon which die are acceptable when it examines wafers containing dies of unknown quality. (First Mellor Decl. ¶ 3; First Stacy Decl., Ex. E at CAM000049.) Specifically, the Falcon "uses inspection parameters to determine how far the individual die can deviate from the golden die." (First Mellor Decl. ¶ 3; First Stacy Decl., Ex. E at CAM000059-86, CAM000114-139; Thirty-Second Lee Decl, Ex. G at 35-36.) Therefore, when inspecting an unknown die

the Falcon does not actually compare the unknown die to the golden die, but compares it to the "inspection parameters to decide whether the [die] under test is close enough to the ideal die to be considered good or not." (Thirty-Second Lee Decl., Ex. F at 53:6-17.) The Falcon also typically uses the wafer map when actually inspecting a wafer with die of unknown quality. (Thirty Second Lee Decl., Ex. F at 55:14-23, 56:22-24.)

On the Falcon, the processes of creating the reference die, generating the wafer map, cleaning the reference die to produce a golden die, and creating the inspection parameters that define an acceptable die can involve use of more than one physically discrete wafer (although only individual die on those discrete wafers may be used at any particular step). (Thirty-Second Lee Decl., Ex. C at 16-17 ("For example, a first sample wafer might have a first abnormality type that has been predetermined to not be a defect. This first sample wafer would be used to train the machine so that it does not erroneously identify the first abnormality type to be a defect. A second sample wafer might have a second abnormality type that has been predetermine[d] to not be a defect. This second sample wafer would be used to train the machine so that it does not erroneously identify the second abnormality type to be a defect."); *id.*, Ex. F at 170:10-17 (during deposition of Camtek's expert, Question: "So is it true that the Falcon machine is configured so that one wafer can be used to make a golden die, and another, different wafer can be used to adjust the minimum and maximum parameters?" Answer: "A die from one wafer can be used to make the golden die, and a die from a second wafer can be used to adjust min and max, which are inspection parameters, yes."); *see also id.*, Ex. F at 116:21-24 (noting that

the Falcon uses wafer maps created from a prior wafer when inspecting other dies); *id.*, Ex F at 170:16-171:4.)

Camtek does not dispute that the Falcon is capable of undertaking the steps described above by using multiple, physically discrete wafers, as opposed to merely using multiple individual die found on a single wafer. Indeed, Camtek's own expert testified that the Falcon is capable of using multiple discrete wafers at these various steps. But Camtek argues that all of these steps do not constitute "training." Instead, Camtek argues that training is completed as soon as a golden die is formulated and that training means "examining wafers to develop a model of a good quality wafer" which Camtek interprets as "a collection of pixels representing a perfect wafer." (*See, e.g.*, Def.'s Mem. in Opp'n to Mot. for Summ. J. at 21-22.)

But Camtek's construction is contrary to the binding construction of the term "training" adopted by the Court in 2008. The Court construed training to mean "[e]xamining wafers to develop a model of a good quality wafer." (*Markman* Order at 20.) In adopting this construction, the Court rejected Rudolph's construction which incorporated "telling the system what a 'good die' comprises, and viewing good die to form a model based on common characteristics, elements and ranges. The model is then used to inspect die to locate defects." (*Id.* at 19-20 (internal citation omitted).) The only portion of Rudolph's description that the Court specifically excluded however, was "Plaintiffs[']reliance on the step in which the model is used to inspect die to locate defects" because that "is a step separate from training, and need not be used to define training." (*Id.* at 20.) But the Court did not reject Rudolph's description that training

incorporated "telling the system what a 'good die' comprises, and viewing good die to form a model based on common characteristics, elements, and ranges." (*Id.*) Notably, the Court did not construe training to involve development of a model of an "ideal" quality wafer. Instead, the Court concluded that a model wafer is one "with all of the necessary characteristics to inspect an unknown quality wafer." (Mem. of Law & Order at 8.); *see also August Tech. Corp.*, 655 F.3d at 1283 (noting on appeal that "Claim 1 requires 'visual inputting a plurality of known good quality wafers during training' to teach the system a standard for detecting defects. The district court referred to this 'plurality of known good quality wafers' limitation as the multiple wafer limitation. **This limitation requires multiple good wafers to be used to train the system – so the inspection device will know a flawed wafer when it sees one**." (emphasis added)).

Thus, to develop a model of a good quality wafer that can be used to conduct die inspection requires more than the creation of the golden die, because, as Camtek's own expert testified, the Falcon inspects unknown die and compares them to the inspection parameters, not the golden die itself. Therefore, the Falcon would not have finished training – sufficient to have arrived at "the definition of a good die" or one "with all of the necessary characteristics to inspect an unknown quality wafer" if it stopped with the creation of the golden die. (*See* Thirty-Second Lee Decl., Ex. A at 12:63-13:7 (explaining that "[a] good die is defined as a die that does not have defects but may very [w]ell and is actually likely to have process variations in it; however all of these process variations have been deemed not to be defects and rather to be acceptable variations").) The process of creating inspection parameters is thus integral to creating a model of a

good quality wafer, because the process identifies acceptable variations that will be allowed during inspection. Because the Falcon is capable of using multiple, physically discrete wafers to create the inspection parameters, it infringes claim 1, and the Court will grant Rudolph's motion for summary judgment with respect to that claim.[8]

2. Claim 3

With respect to the training element of claim 3, Rudolph is required to show direct infringement, and "must either point to specific instances of direct infringement or show that the accused device necessarily infringes the patent in suit." *ACCO Brands, Inc. v. ABA Locks Mfrs. Co.*, 501 F.3d 1307, 1313 (Fed. Cir. 2007). Circumstantial evidence can be used to show specific instances of direct infringement. *Fuji Photo Film Co. v. Jazz Photo Corp.*, 394 F.3d 1368, 1374 (Fed. Cir. 2005). Rudolph concedes that the Falcon **can** be operated in a non-infringing manner with respect to the training element of claim 3 (training with only a single discrete wafer), and thus must show that Camtek actually operated, or instructed that the Falcon to be operated in an infringing manner.

[8] Camtek again repeats its argument based on its erroneous interpretation of the Federal Circuit's opinion that during training the Falcon inspects only individual die on wafers and never examines entire wafers. (*See, e.g.*, Def.'s Mem. in Opp'n to Mot. for Summ. J. at 23.) As explained above in the context of Camtek's request for claim construction, that the Falcon inspects individual die is irrelevant. What matters for the purposes of the training element is that the Falcon examines aspects of more than one physically discrete wafer, regardless of whether that aspect is only an individual die.

In support of its motion for summary judgment, Rudolph offers, among other evidence, a declaration from Darren James, a former Camtek employee. (*See* Decl. of Darren James ¶ 2, July 2, 2012, Docket No. 837.)[9] James contends that

> As a Camtek employee, I personally operated the Falcon machine and worked extensively with Camtek's customers in training the Falcon on various wafer products and helping them to find solutions to difficult inspection problems. During my employment at Camtek, I trained the Falcon in the U.S. using multiple whole wafers. In particular, I used multiple wafers in the training process which included the steps of creating a wafer map, a golden die model, and the model parameters such as minimums and maximums.

(*Id.* ¶ 3.) James also declares that he trained specific United States-based Camtek customers – including Cypress Semiconductor, Delphi, and Micro Systems Engineering - to use the Falcon machine "using multiple discrete wafers." (*Id.* ¶¶ 5, 8, 10-11, 13, 20.) Specifically, James indicated that he "trained the Falcon systems that were installed at Cypress Semiconductor after November 30, 2004." (*Id.* ¶ 5.) Plaintiffs' expert also

[9] As an initial matter, Camtek argues that the declaration from Darren James was an improper submission under the Court's scheduling order because it constitutes new fact discovery. (*See* Second Decl. of Mark Smith, July 23, 2012, Docket No. 867.) Camtek brought a motion seeking to "enforce the Scheduling Order" and "block Rudolph from relying on Darren James, including Mr. James' declaration." (Mot. to Enforce the Court's Scheduling Order at 1, July 11, 2012, Docket No. 858.) The Magistrate Judge has since denied the motion. (Order at 1, Jan. 24, 2013, Docket No. 959.) The Magistrate Judge concluded that Rudolph had "not engaged in new fact discovery in violation of the Court's scheduling order" and also noted that "there is no unfair surprise to Camtek, given that: Mr. James was identified by Camtek seven years ago as an employee who provided customer and sales support, Plaintiffs identified Mr. James as a witness in supplemental disclosures served May 9, 2012, and Plaintiffs' expert Dr. Mundy relied on facts provided by Mr. James in his expert report served on May 15, 2012." (*Id.* at 1-2.) Accordingly, the Court may properly rely upon the James Declaration in resolving the present motions. The Magistrate Judge also, however, ordered that James appear for a deposition within thirty days of the date of the order. (*Id.* at 2.) The parties have provided no further communication to the Court regarding the deposition of James or what impact it might have had on the present motions.

inspected a Falcon at a Camtek customer's facility in Arizona, interviewed James, spoke with a Camtek customer that had been trained on the Falcon by Camtek, and interviewed a Rudolph employee regarding industry training practices, and based on the information gathered, concluded that Camtek trained its customers to use multiple, physically discrete wafers when using the Falcon's training function. (*See* Thirty-Second Lee Decl., Ex. C at 31-34.)

Surprisingly, Camtek has provided no evidence from other Camtek employees or customers indicating that they did not operate the Falcon in an infringing manner during the relevant time period to refute James' declaration. Nor has Camtek provided any evidence to demonstrate that the customers identified by James were not, in fact, trained on Falcon machines to use multiple, physically discrete wafers during the relevant time period. Indeed, Camtek's expert testified that he did not "have any specific knowledge" of "whether or not anybody from Camtek has actually ever trained a Falcon system using multiple wafers." (Thirty-Second Lee Decl., Ex. F at 132:23-133:2.) He also testified that he had never asked anyone at Camtek whether they had ever performed the steps of claim 3. (*Id.*, Ex. F at 129:25-130:1.) Instead, Camtek generally attacks James' credibility as a former Camtek employee who now works for Rudolph, to suggest that his testimony might not be accurate. (Def.'s Mem. in Opp'n to Mot. for Summ. J. at 25-27.)[10] The only **evidence** actually presented by Camtek in support of its position that the

[10] Camtek also argues that James' declaration is insufficiently specific to show that the Falcon was operated in an infringing manner after November 30, 2004 – the date claim 3 of the '6,298 patent was issued. (Def.'s Mem. in Opp'n to Mot. for Summ. J. at 24.) But James' (Footnote continued on next page.)

Falcon did not practice claim 3 is a page from the Falcon's user guide which teaches customers setup using a single wafer. (*See* First Stacy Decl., Ex. E at CAM000059.) But at trial, Camtek's head of customer support testified that during personal training of customers on the Falcon machine Camtek employee's "don't use the user manuals themselves. User manuals are provided to customers when they first buy a machine if they ask for them, but during the training, we use different materials." (Thirty-Fourth Decl. of Joseph E. Lee, Aug. 6, 2012, Docket No. 902, Ex. N at 1431:8-17.) Camtek also presented testimony at trial that the user manual was not

> necessarily on how to work with the Falcon. Again, we sent engineers to train the customers on how to work with the machine. When you buy a $500,000 machine, you don't read the manual. You expect a person to sit with you and tell you exactly how the machine works. It is not a VCR. It's a very complicated machine.

(*Id.*, Ex. N at 1688:7-14.) Therefore, Camtek's identification of a single page in the Falcon manual that showed customers how to run set up with one wafer – which was not used by Camtek employees when actually training customers on the machine – is insufficient to create a genuine issue of material fact with respect to James' specific declaration that he showed Camtek customers how to execute the training element of the machine using multiple, physically discrete wafers. Furthermore, the mere attack on James' credibility, in the absence of other evidence demonstrating that his testimony is

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(Footnote continued.)
declaration specifically states that he "trained the Falcon systems that were installed at Cypress Semiconductor after November 30, 2004," and did so using multiple discrete wafers. (James Decl. ¶ 5.) Accordingly, Camtek's argument that James' declaration lacks the requisite specificity is incorrect.

unreliable or incorrect, is insufficient to survive summary judgment. *See Thompson v. Hubbard*, 257 F.3d 896, 899 (8th Cir. 2001) (noting that to defeat summary judgment a party must "present enough evidence to permit a reasonable jury" to find in its favor, and that a party "may not stave off summary judgment armed with only the hope that the jury might disbelieve witnesses' testimony" (internal quotation marks omitted)). Because Camtek has presented no evidence to refute James' testimony or the opinion of Plaintiffs' expert upon which a reasonable jury could conclude that Camtek did not train its customers to use the Falcon in a manner that infringed claim 3, the Court will grant Rudolph's motion for summary judgment of infringement with respect to this claim.

IV. MOTIONS TO EXCLUDE EXPERT TESTIMONY

A. Standard of Review

The admissibility of expert testimony is a question of law for the court, governed by Fed. R. Evid. 702 and *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993). The proponent of expert testimony bears the burden of establishing its admissibility. *Wagner v. Heston Corp.*, 450 F.3d 756, 758 (8th Cir. 2006).

Federal Rule of Evidence 702 provides that:

> A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if:
> (a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue;
> (b) the testimony is based on sufficient facts or data;
> (c) the testimony is the product of reliable principles and methods; and
> (d) the expert has reliably applied the principles and methods to the facts of the case.

Fed. R. Evid. 702. "An expert may base an opinion on facts or data in the case that the expert has been made aware of or personally observed. If experts in the particular field would reasonably rely on those kinds of facts or data in forming an opinion on the subject, they need not be admissible for the opinion to be admitted." Fed. R. Evid. 703. If the facts or data used by the expert are, however, inadmissible "the proponent of the opinion may disclose them to the jury only if their probative value in helping the jury evaluate the opinion substantially outweighs their prejudicial effect." *Id.*

In determining whether an expert's testimony is admissible, the Court considers (1) whether the proposed expert is qualified to assist the trier of fact; (2) whether the testimony would be useful to the trier of fact in deciding the ultimate issues of fact; and (3) whether the proposed evidence is reliable or trustworthy in an evidentiary sense. *Sappington v. Skyjack, Inc.*, 512 F.3d 440, 448 (8th Cir. 2008). "Expert testimony is inadmissible if it is speculative, unsupported by sufficient facts, or contrary to the facts of the case." *Marmo v. Tyson Fresh Meats, Inc.*, 457 F.3d 748, 757 (8th Cir. 2006). To satisfy the reliability requirement, the proponent of the expert testimony must show "both that the expert is qualified to render the opinion and that the methodology underlying his conclusions is scientifically valid." *Id.* at 757-58.

Rule 702 favors admission of testimony and "the exclusion of an expert's opinion is proper only if it is so fundamentally unsupported that it can offer no assistance to the jury." *Wood v. Minn. Mining & Mfg Co.*, 112 F.3d 306, 309 (8th Cir. 1997) (internal quotations omitted); *see also* Fed. R. Evid. 702 advisory committee's note (explaining

that exclusion of expert testimony under *Daubert* "is the exception rather than the rule"). Moreover, "[v]igorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof are the traditional and appropriate means of attacking shaky but admissible evidence." *Daubert*, 509 U.S. at 596.

Like all testimony, expert testimony is also subject to the relevancy requirements of Fed. R. Evid. 401, 402, and 403. To be admissible testimony must be "directly relevant" and "logically advance[] a material aspect of the proposing party's case." *Cooper v. Brown*, 510 F.3d 870, 942 (9th Cir. 2007).

B. Camtek's Motion to Exclude McCloskey

Camtek brings a motion to strike the May 15, 2012 expert report of McCloskey and to exclude the testimony of McCloskey relating to offers for sale and injunctive relief. (Mot. to Exclude Expert Testimony & Report of Frances McCloskey, July 2, 2012, Docket No. 818.) Although the Court has determined that summary judgment in Rudolph's favor on infringement is appropriate, it must still decide Camtek's motion as McCloskey's expert report and testimony will be relevant to the remedies stage of these proceedings that will follow issuance of this Order.

Camtek argues that McCloskey's report and testimony must be excluded for two primary reasons. First, Camtek argues that McCloskey's opinion on injunctive relief is based on an "incorrect understanding of what constitutes an 'offer for sale' and whether such offers constitute patent infringement under United States law." (Mem. in Supp. of Mot. to Exclude Expert Testimony & Report of Frances McCloskey at 5, July 2, 2012,

Docket No. 821.) Second, Camtek argues that McCloskey's testimony should be excluded because "she bases her entire opinion on off-the-record conversations with Rudolph employees—making no effort to confirm the truth of those statements." (*Id.*)

1. McCloskey's 2012 Report and Testimony

Rudolph did not offer expert testimony in support of its request for injunctive relief at the initial trial. Rudolph did however offer a report and testimony from McCloskey at the first trial regarding its entitlement to lost profits as a result of the infringing sales of the Falcon. (Tr. at 1176-77, Mar. 5, 2009, Docket No. 513.)[11]

McCloskey's 2012 opinion suggests that Rudolph has been irreparably harmed by Camtek's communicating with third parties in the United States for the purpose of offering to sell Falcon systems for use outside the United States. (Third Decl. of Sarah Guske, Ex. A at 4, July 2, 2012, Docket No. 822.) Specifically, the opinion contained in McCloskey's report is that:

> Camtek's offers to sell and actual sales of Falcon inspection systems to entities in the United States harms Rudolph because they diminish the ability of Rudolph to sell its competing inspection systems to those parties and in the market as a whole. Rudolph and Camtek are direct competitors in the U.S. and worldwide in the market for wafer inspection systems. Camtek's U.S. communications generate interest in the infringing Falcon product to the detriment of Rudolph, a U.S.-based company who makes its competing products in the U.S.

(*Id.*)

[11] McCloskey issued expert reports on June 19, 2007, and October 20, 2008, regarding damages based on lost profits and reasonable royalties that Rudolph was entitled to receive as a result of the infringing actions of Camtek. (Third Decl. of Sarah Guske, Ex. A at 2, July 2, 2012, Docket No. 822.)

At her 2012 deposition, McCloskey testified that she was not entirely certain what the requirements for an offer for sale were, but that generally an offer for sale is "[a] communication of the features and pricing and/or details of an infringing device or product." (Third Guske Decl., Ex. B at 17:25-19:24.) When pressed on whether she considered an advertisement to be an offer for sale, McCloskey responded that "[w]ell, as a layperson . . . I would say an advertisement is an offer to sell. I don't know what the Federal Circuit has to say about an advertisement. They may require that it be a more detailed offer." (*Id.*, Ex. B at 19:18-24.) McCloskey also testified that in forming her opinion, she relied on the assumption that an offer for sale in the United States, regardless of where the product was shipped, constitutes infringement under United States law. (*Id.*, Ex. B at 8:3-11.)

2. Offers for Sale/Infringing Offers for Sale

Under patent law, infringing conduct includes an offer to sell an infringing product within the United States. *See* 35 U.S.C. § 271(a). Whether an activity constitutes an "'offer to sell' is to be interpreted according to its ordinary meaning in contract law." *Rotec Indus., Inc. v. Mitsubishi Corp.*, 215 F.3d 1246, 1255 (Fed. Cir. 2000). An offer is a communication "which the other party could make into a binding contract by simple acceptance." *Grp. One, Ltd. v. Hallmark Cards, Inc.*, 254 F.3d 1041, 1048 (Fed. Cir. 2001). "Based on this principle, courts often conclude that advertisements and promotional materials do not constitute offers." *Ductcap Prods., Inc. v. J&S Fabrication, Inc.*, Civ. No. 09-1179, 2009 WL 3242022, at *3 (D. Minn. Oct. 2, 2009). Additionally,

an offer for sale does not constitute infringement where the location of the sale is outside of the United States. *See Transocean Offshore Deepwater Drilling, Inc.*, 617 F.3d at 1309.

3. Admissibility of McCloskey's Testimony[12]

Experts are not allowed to testify as to legal matters. *See S. Pine Helicopters, Inc. v. Phoenix Aviation Managers, Inc.*, 320 F.3d 838, 841 (8th Cir. 2003) ("[E]xpert testimony on legal matters is not admissible."). To the extent, therefore that McCloskey's testimony would be for the purpose of telling the Court what offers constituted infringement, it would be improper. But that does not appear to be the purpose or the basis of McCloskey's testimony. Instead, McCloskey's opinion is based on explaining the types and quantities of harm that occur to Rudolph's business when Camtek undertakes certain actions. McCloskey will provide the Court with information on the financial and competitive nature of the very niche market for semiconductor

[12] Rudolph argues as a preliminary matter that Camtek should not be allowed to move for the exclusion of McCloskey's testimony, because it already tried to do so before the Magistrate Judge in its motion to bifurcate. (Response to Mot. to Exclude the Report & Testimony of McCloskey at 6-7, July 23, 2012, Docket No. 870.) Camtek did argue to the Magistrate Judge that McCloskey's testimony should be excluded, but that argument was made in the context of a discussion about damages and an assertion that McCloskey's 2012 report violated the Court's scheduling order. (Order at 2-3, June 26, 2012, Docket No. 816.) Because the Magistrate Judge determined that damages were not to be re-tried on remand, he never reached the question of the admissibility of McCloskey's opinion as to damages. (*Id.* at 3.) Instead, the Magistrate Judge determined that expert reports on injunctive relief were permissible. (*Id.*) Camtek has appealed the Magistrate Judge's order on this issue, and that appeal is currently pending before the Court. Although it would have been desirable for Camtek to present its entire argument regarding the exclusion of McCloskey's testimony in the same motion, it does not appear that Camtek is currently raising an issue which was already decided against it. Instead, Camtek is specifically challenging the admissibility of McCloskey's testimony as it relates to injunctive relief. Accordingly, the Court finds it proper to consider Camtek's motion to exclude McCloskey.

inspection systems. If McCloskey attempts to testify that certain actions do constitute infringement, Camtek is free to object at that time. This does not however, indicate that McCloskey's testimony is inadmissible.

Additionally, to the extent Camtek argues that McCloskey's testimony should be excluded because she relies on unverified statements of Rudolph employees and hearsay, this does not provide grounds for excluding McCloskey's testimony. First, it is appropriate for an expert to "express an opinion that is based on facts that the expert assumes, but does not know, to be true." *Williams v. Illinois*, 132 S. Ct. 2221, 2228 (2012). Therefore, even if McCloskey relies solely on statements from Rudolph employees in forming her opinion of irreparable harm (which does not appear to be the case), this goes to the weight, not the admissibility of her testimony. McCloskey can assume, for purposes of her testimony, that Camtek took certain actions, and opine about the harm that has resulted to Rudolph as a result of those actions. It will be for the factfinder to determine whether those actions occurred, and for Court to determine whether those actions constitute infringement and therefore must be enjoined. Accordingly, the Court will deny Camtek's motion to exclude the expert report and testimony of McCloskey.

C. Camtek's Motion to Exclude Mundy

Camtek also brings a motion to exclude the expert report of Mundy. Because the Court has relied upon the Mundy expert report in granting summary judgment of infringement in Rudolph's favor, it must satisfy itself at this stage that the expert report

was properly admissible. Camtek makes two main arguments in support of its motion to exclude. First, Camtek contends that Mundy has misconstrued the claims and therefore his testimony about the operation of the Falcon is contrary to law. Second, Camtek argues that Mundy's opinions are based on speculations about how Camtek trains and that Mundy has an erroneous understanding of what constitutes infringing behavior, and therefore his opinion as to how Camtek trained purchasers on the Falcon is inadmissible. Camtek does not dispute that Mundy is well qualified to testify and that he testified as to the functioning of the Falcon and other matters at the first trial. The Court finds that none of these reasons justify exclusion of Mundy's report.

Camtek's first argument does not provide a basis to exclude Mundy. Camtek argues that Mundy has misconstrued the claims because Mundy contends in his deposition testimony that comparing a model to an unknown quality wafer does not mean the model must be compared to the entire wafer. But this issue goes to the microprocessor/inspection element which is not properly before the Court on remand. Therefore, even if Mundy's understanding of the claims with respect to that element was erroneous, this would not serve as a basis for excluding the portion of the report relied upon by the Court in granting summary judgment. Camtek also argues that Mundy has misconstrued the term "model" in rendering his opinion. Although Mundy's interpretation of "model" is consistent with the law of the case, even if it were not, this would not provide a basis for excluding Mundy's report because claim construction is an issue for the Court. Therefore, Mundy is still allowed to present an opinion as to how the Falcon operates and whether it infringes.

Camtek's second argument also does not provide a basis to exclude Mundy. Camtek argues that Mundy has based his opinion about how Camtek trains purely on speculation. Mundy's report does not reflect this characterization. (*See* Fourth Decl. of Sarah Guske, Ex. B, July 2, 2012, Docket No. 830; Thirty-Second Lee Decl., Ex. C.) In his lengthy reports, Mundy references numerous Camtek documents, testimony of other experts, his own expertise in the field, testimony of users of the Falcon, and the like as the basis for formulating his opinions. Accordingly, the Court will deny Camtek's motion to exclude the expert report of Mundy.

D. Rudolph's Motion to Exclude Mellor

Finally, Rudolph brings a motion to strike the June 1, 2012 expert report of Mellor and exclude his testimony about infringement. Because the Court has concluded that summary judgment in Rudolph's favor on infringement is appropriate, even in light of the expert report of Mellor, the Court need not rule on the admissibility of the report, and will deny Rudolph's motion to exclude as moot.

ORDER

Based on the foregoing, and all the files, records, and proceedings herein, **IT IS HEREBY ORDERED** that:

1. Defendant's Motion for Claim Construction [Docket No. 823] is **DENIED**.

2. Defendant's Motion for Summary Judgment of Non-Infringement [Docket No. 823] is **DENIED**.

3. Plaintiffs' Motion for Summary Judgment of Infringement [Docket No. 832] is **GRANTED**.

4. Defendant's Motion to Exclude Expert Testimony and Report of Frances McCloskey [Docket No. 818] is **DENIED**.

5. Defendant's Motion to Exclude Expert Testimony and Report of Joseph Mundy [Docket No. 828] is **DENIED**.

6. Plaintiffs' Motion to Exclude Expert Testimony and Report of John Phillip Mellor [Docket No. 840] is **DENIED as moot**.

7. After the Court issues an order ruling on Defendant's objections [Docket No. 855] to the Magistrate Judge's order regarding remedies [Docket No. 816] it will schedule a status conference with the parties to ascertain the most appropriate manner in which to proceed with respect to the remedies phase of this matter.

8. The parties are to show cause on or before twenty-one (21) days from the date of this Order why the Court should not unseal the Order, and to specify any portion of the Order warranting redaction.

DATED: March 31, 2014
at Minneapolis, Minnesota.

_____
JOHN R. TUNHEIM
United States District Judge